McIlvaine – Hot Topics

“FGD Scrubber Components”

Augusta Fiberglass – November 8, 2012

By: Doug Reinke

Innovative Fiberglass and Dual Laminate Solutions
Safety First – Working at the Client’s Plant

- Safety is our #1 Priority.
- Work at client sites, Blackville, SC, and Ocean Springs, MS.
- Work Non-union and Union sites.
- Safety Program Includes all Shareholders – Project Team

Fabrication shop on-site

Working on field assembly
Mobilize to the Power Plant Site

Moving equipment on site is the first step for field fabrication
Buildings and Staging Area

Fabrication Building for Chimney Liner Cans
- 38’ diameter X 40’ tall each, staging area

FGD Scrubber - JBR Building – 150’ X 150’

Office and raw material storage

Heavy equipment for fabrication and transport
Leader in Field Fabrication and FRP Construction

In 1988, first to fabricate the largest field wound FRP tanks - 52’ diameter X 42’ tall.

In 2001, first to achieve compliance with a new field fabrication, field assembly and field repair accreditation through ASME. Additional skill set required for Field Project Management, Scheduling, QA/QC, Safety, Project Controls, Reporting, etc. associated with large field projects on the client’s site. We have staff to run 10 simultaneous field projects.
FGD Equipment Fabrication Onsite for Power Plants

Since 2003, our field operations have been involved in the manufacture:

- (7) JBR’s, (7) Gas Risers/Mist Eliminators/Turning Vanes
- 53 large diameter stack liners at 30 different Power Plants
- 58,000’+ of liner/duct = over 11 miles
- *Over 30 million pounds of field fabricate FRP equipment.*
First Patented Mandrel for Large Field Vessels

Huge innovation investment for power industry client and advancing FRP applications
(5) - FRP Vessels 119’ Diameter X 55’ High
(2) - FRP Vessels 108’ Diameter X 55’ High

We have field fabrication experience with the largest vessels in the world. B&D Plastics fabricates the largest dual laminate equipment in the world.
World’s Largest All FRP Process Equipment

System weighs more than 1.5 million pounds
Largest FRP and Dual Laminate Products

- Products
  - Vessels (φ120’) 4 Million Gallons
  - Stack Liners (φ38’)
  - 23’ Sq to 26’- 7” Transition
  - FRP Gas Riser (φ68’)
  - Mist Eliminator (φ68’)
  - FRP Ducts and Elbow (φ38’)
  - FRP Hoods, Cover (104’ X 42’)
  - Storage Tanks
  - Scrubber Systems – 119’ X 140’ High
  - Tank (φ25’X 30’) High Dual Laminate
  - Scrubber (φ20’X 100’) Dual Laminate

What diameter tank can be shipped over the roads?
Blackville fabricated - 45’ diameter tanks shipped over the road
Innovative Field Assembly Solutions
Innovative Solutions Save Capital Investments

Power Plant Benefits:
- Safer – less work on-site
- Less site congestion
- Reduced schedule
Design Methodology and Finite Element Analysis

- Design Conditions
  - Temperature
  - Pressure and Vacuum
  - Wind, Seismic & Snow load
  - Internal live load
  - Abrasion
  - Support method & locations
  - Oblation (50’ φ to 13’ width)
  - Insulation and Heat Panels
  - Agitator Mixer Load
  - Ladder and Handrail
  - Lifting analysis

(8) Degreed Engineers on staff
FEA Analysis for Future Applications

FEA Model Used for Analysis

- FRP Outlet Elbow
- FRP Outlet Cone
- FRP Absorber Shell
- FRP Trapezoidal Stiffener
- FRP Breach

(d) 10" Pipe for Breach Opening Reinforcement
Heavy Equipment Investment

In the shop, in the field
• Fabricating
• Assembly
• Testing – Hydro
• Loading
• Transporting
AFC and B&D Plastics Both Can Deliver by Barge
Why Augusta Fiberglass - Summary

- Excellent safety record in shops and with field projects.
- Leader in Process, many “firsts” with – vessels, duct, tanks.
- RTP-1 since 1995 - Blackville & since 2001 for field projects.
- Fabricate and assemble ASME stamped vessels worldwide.
- Design methodology with FEA.
- Patented Mandrel for large field fabricated vessels.
- Expanding dual laminate operations, RTP-1 soon.
- No debt - $50 Million bonding plus a field service offering.
- Our innovation can address all of your FRP requirements.

We innovate solutions to solve complex client needs!
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